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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SOMMERFELD, PAUL J	

ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/712,743	SANTOSUOSSO, JOHN MATTHEW	
	Examiner	Art Unit	
	Paul J. Sommerfeld	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/13/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 7 is objected to because of the following informalities: "execution of the query of" should be replaced by --executing of the query--. Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 14-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 14 recites "a computer program product", which is defined on page 8 of the specification of the invention as including "a transmission type media such as a digital or analog communications link". Because transmitted signals, and synonymously, carrier waves, both being forms of electromagnetic energy, do not fall into one of the statutory categories of 35 U.S.C. 101, the claim includes non-statutory subject matter. A detailed

explanation describing why carrier waves are regarded as non-statutory subject matter under 35 U.S.C. 101 follows:

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in order to contrast them with process claims." 1 D. Chisum, Patents § 1.02 (1994). The three product classes have traditionally required physical structure or material.

"The term machine includes every mechanical device or combination of mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1854). A modern definition of machine would no doubt include electronic devices which perform functions. Indeed, devices such as flip-flops and computers are referred to in computer science as sequential machines. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine.

A "composition of matter" "covers all compositions of two or more substances and includes all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." Shell Development Co. v. Watson, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), aff'd, 252 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958). A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter.

The Supreme Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." Diamond v. Chakrabarty, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980) (quoting American Fruit Growers, Inc. v. Brogdex Co., 283 U.S. 1, 11, 8 USPQ 131, 133 (1931), which, in turn, quotes the Century Dictionary). Other courts have applied similar definitions. See American Disappearing Bed Co. v. Arnaelsteen, 182 F. 324, 325 (9th Cir. 1910), cert. denied, 220 U.S. 622 (1911). These definitions require physical substance, which a claimed signal does not have. Congress can be presumed to be aware of an administrative or judicial interpretation of a statute and to adopt that interpretation when it re-enacts a statute without change. Lorillard v. Pons, 434 U.S. 575, 580 (1978). Thus, Congress must be presumed to have been aware of the interpretation of manufacture in American Fruit Growers when it passed the 1952 Patent Act.

A manufacture is also defined as the residual class of product. 1 Chisum, § 1.02[3] (citing W. Robinson, The Law of Patents for Useful Inventions 270 (1890)).

A product is a tangible physical article or object, some form of matter, which a signal is not. That the other two product classes, machine and composition of matter, require physical matter is evidence that a manufacture was also intended to require physical matter. A signal, a form of energy, does not fall within either of the two definitions of manufacture. Thus, a signal does not fall within one of the four statutory classes of § 101.

Claims 15-18 are rejected as being dependent upon rejected claim 14.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziauddin et al (U.S. Publication 2005/0108188 A1) in view of Ramasamy et al (U.S. Patent Number 6,944,614 B1).

As to claim 1, Ziauddin et al teaches a method for implementing enhanced query governor functions (see Abstract) comprising the steps of:

checking for a timeout value for a query (lines 2-5 of paragraph [0008], checking the execution time of a query and comparing its execution time with an estimated execution time, in which the estimated execution time is equivalent to a timeout value),

responsive to identifying a timeout value for the query, resetting an execution time for the query (lines 3-4 of paragraph [0008], monitoring the query execution time inherently involves resetting the execution time, so that the execution time can be measured from the moment the query started execution);

starting a monitor for each timeout value for the query (line 7 paragraph [0007], thresholds are monitored at runtime. The process of monitoring must have been started at some point in time. Therefore, starting a monitor for the thresholds is taught inherently.);

starting the execution of the query (line 4 of paragraph [0008], because the query is executing, starting of the execution of the query is inherent);

periodically checking execution status of the query (lines 1-5 of paragraph [0008], periodically looking at an executing query and comparing its execution time, which is an example of execution status);

responsive to identifying the query is executing, checking for any expired timeout value (lines 3-7 of paragraph [0008], an expired timeout value is equivalent to a negative execution time difference as determined by comparing the current execution time with the estimated time); and

halting the execution of the query responsive to an identified expired timeout value (lines 12-14 of paragraph [0017], once a query is identified as having a negative time difference, the query may be aborted and replaced with a new query).

Ziauddin et al does not explicitly teach monitoring the execution of predefined events during the execution of the query; said predefined events including a begin or end of processing of at least one of a trigger and a user defined function (UDF).

Ramasamy et al teaches monitoring the execution of predefined events during the execution of the query; said predefined events including a begin or end of processing of at least one of a trigger and a user defined function (UDF) (col. 1 lines 50-53, col. 7 line 1 through col. 8 line 2, col. 8 lines 15-20, monitoring an executing query for events called operators, and recording the start and stop time for each operator encountered);

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have modified the method of monitoring query timeout values taught by Ziauddin et al by the method of monitoring events and recording event start and stop times taught by Ramasamy et al to obtain the claimed invention, because past execution history can be used to determine correct optimizer settings (Ziauddin et al lines 1-3 of paragraph [0028]).

As to claim 2, Ziauddin et al, as modified, teaches the step of starting monitors for each timeout value for the query includes the step of starting monitors for each UDF and trigger (Ziauddin et al line 1-3 and 7 of paragraph [0007]. Starting monitors for each UDF and trigger is equivalent to setting thresholds at various places in the execution plan and monitoring them, because both methods break the query plan into

parts, monitor the time taken by each part, and recognize when the time taken by a part exceeds a predefined value.).

As to claim 3, Ziauddin et al, as modified, teaches the step of monitoring the execution of said predefined events includes the step of recording each said trigger event start time and stop time (Ramasamy et al col. 8 lines 1-2 and 20, Recording each trigger event start time and stop time is equivalent to recording the start time and the stop time for each operator, because both methods record the start and stop times of a part of an executing query.).

As to claim 4, Ziauddin et al, as modified, teaches the step of monitoring the execution of said predefined events includes the step of recording each said user defined function (UDF) start time and stop time (Ramasamy et al col. 8 lines 1-2 and 20, Recording each UDF event start time and stop time is equivalent to recording the start time and the stop time for each operator, because both methods record the start and stop times of a part of an executing query.).

As to claim 5, Ziauddin et al, as modified, teaches the step of monitoring the execution of said predefined events includes the step of recording empirical data for said trigger, and said user defined function (UDF) (Ramasamy et al col. 8 lines 1-2 and 20, empirical data is read on start and stop times).

As to claim 6, Ziauddin et al, as modified, teaches the step of checking to determine based upon said recorded empirical data whether in most likelihood that the query can finish within timeout values for said trigger and said user defined function (UDF), and responsive-to-determining in most-likelihood the query will not finish within said timeout values, execution of the query is not started (Ziauddin et al lines 6-10 of paragraph [0007]. Using an optimizer-estimated query execution time to determine whether or not to start a query is equivalent to the claimed limitation, because both methods estimate the execution time of a query, and if the estimated time exceeds a threshold, the query is not started.).

As to claim 7, Ziauddin et al, as modified, teaches the step responsive to halting the execution of the query of, setting return code values for said identified expired timeout value for processing either said UDF or said trigger (Ziauddin et al lines 28-29 of paragraph [0023]. Setting return code values is equivalent to returning query results, because both return information regarding the results of a query.).

As to claim 8, Ziauddin et al, as modified, teaches the steps of monitoring events, and responsive to an event to modify attributes, performing a modify attributes routine (Ziauddin et al lines 6-10 of paragraph [0025], teaches tuning settings in generating a query. Modifying attributes is read on tuning settings, because both modify information corresponding to a query.).

As to claim 9, Ziauddin et al, as modified, teaches wherein said modify attributes routine includes the steps responsive to a monitor being requested, setting a timeout for the monitor (Ziauddin et al line 7 of paragraph [0007], timeout is read on threshold).

As to claim 10, Ziauddin et al, as modified, teaches the steps responsive to an event to execute query, performing an execute query routine (Ziauddin et al lines 13-16 of paragraph [0021], executing a new query plan in response to determining that the time to execute the new plan is less than the time remaining for the currently executing query).

As to claim 11, Ziauddin et al teaches an apparatus (see Abstract) for implementing enhanced query governor functions comprising:

a query governor program including a SQL processor program, said SQL processor program for monitoring events (Lines 2-5 of paragraph [0008] teach a background process that periodically looks at currently executing queries, which is equivalent to a query governor program, because both monitor the execution of a query. Lines 1-3 of paragraph [0025] teach that the invention includes SQL processing capabilities.), and said SQL processor program responsive to an event to modify attributes, performing a modify attributes routine (lines 6-10 of paragraph [0025], teaches tuning settings in generating a query. Modifying attributes is read on tuning settings, because both modify information corresponding to a query.); and responsive to an event to execute query, performing an execute query routine (lines 13-16 of

paragraph [0021], executing a new query plan in response to determining that the time to execute the new plan is less than the time remaining for the currently executing query); said modify attributes routine including the steps responsive to a monitor being requested, setting a timeout for the monitor (line 7 of paragraph [0007], timeout is read on threshold).

Ziauddin et al does not explicitly teach said query governor program including a user defined function (UDF) and trigger monitor program; said UDF and trigger monitor program for monitoring the execution of predefined events during the execution of the query; said predefined events including a begin or end of processing of at least one of a trigger and a user defined function (UDF).

Ramasamy et al teaches said query governor program including a user defined function (UDF) and trigger monitor program (col. 1 lines 50-53, col. 7 line 1 through col. 8 line 2, col. 8 lines 15-20, monitoring an executing query for events called operators, and recording the start and stop time for each operator encountered); said UDF and trigger monitor program for monitoring the execution of predefined events during the execution of the query (col. 1 lines 50-53, col. 7 line 1 through col. 8 line 2, col. 8 lines 15-20, teaches monitoring for operators, which are predefined events because the monitoring program predetermined to monitor for operators); said predefined events including a begin or end of processing of at least one of a trigger and a user defined function (UDF) (col. 8 line 20, since the start and stop times are recorded, inherently, the begin and end of processing must be monitored).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have modified the method of monitoring query timeout values taught by Ziauddin et al by the method of monitoring events and recording event start and stop times taught by Ramasamy et al to obtain the claimed invention, because past execution history can be used to determine correct optimizer settings (Ziauddin et al lines 1-3 of paragraph [0028]).

As to claim 12, Ziauddin et al, as modified, teaches said SQL processor program responsive to said event to execute query performing said execute query routine includes the steps of checking to determine based upon said recorded empirical data whether in most likelihood that the query can finish within timeout values for said trigger and said user defined function (UDF), and only responsive to determining in most likelihood the query can finish within said timeout values, starting execution of the query (Ziauddin et al lines 6-10 of paragraph [0007]. Using an optimizer-estimated query execution time to determine whether or not to start a query is equivalent to the claimed limitation, because both methods estimate the execution time of a query, and if the estimated time exceeds a threshold, the query is not started.).

As to claim 13, Ziauddin et al, as modified, teaches said SQL processor program responsive to said event to execute query performing said execute query routine includes the steps of identifying an expired timeout value for said trigger or said UDF, halting the execution of the query (Ziauddin et al lines 12-14 of paragraph [0017], once

a query is identified as having a negative time difference, the query may be aborted and replaced with a new query).

As to claim 14, Ziauddin et al teaches a computer program product for implementing enhanced query governor functions in a computer system, said computer program product including instructions executed by the computer system (lines 1-5 of paragraph [0033]. For the remainder of the claim, Applicant is directed to discussions and remarks made in regarding claim 1 above.).

As to claim 15, Ziauddin et al, as modified, teaches said instructions further cause the computer system to perform the steps of monitoring events, and responsive to an event to modify attributes, performing a modify attributes routine (Ziauddin et al line 7 of paragraph [0007], timeout is read on threshold).

As to claim 16, Ziauddin et al, as modified, teaches said modify attributes routine includes the steps responsive to a monitor being requested, setting a timeout for the monitor (Ziauddin et al line 7 of paragraph [0007], timeout is read on threshold).

As to claim 17, Ziauddin et al, as modified, teaches the step of monitoring the execution of said predefined events includes the step of recording empirical data for said trigger, and said user defined function (UDF) (Ramasamy et al col. 8 lines 1-2 and 20, empirical data is read on start and stop times).

As to claim 18, Ziauddin et al, as modified, teaches the steps of checking to determine based upon said recorded empirical data whether in most likelihood that the query can finish within timeout values for said trigger and said user defined function (UDF), and only responsive to determining in most-likelihood the query can finish within said timeout values, starting execution of the query (Ziauddin et al lines 6-10 of paragraph [0007]. Using an optimizer-estimated query execution time to determine whether or not to start a query is equivalent to the claimed limitation, because both methods estimate the execution time of a query, and if the estimated time exceeds a threshold, the query is not started.).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. Publication 2004/0167873 A1, issued to Dettinger et al, for teaching monitoring runtime thresholds during query execution.
- U.S. Publication 2004/0172385 A1, issued to Dayal, for teaching a method of pausing a query if resource usage exceeds a predetermined threshold.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul J. Sommerfeld whose telephone number is 571 272-6545. The examiner can normally be reached on M-F 7:45 am - 4:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim T. Vo can be reached on 571 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIM VO
PRIMARY EXAMINER